Correlation of Ontario Mathematics 2005 Curriculum to Addison Wesley Math Makes Sense 5

Number Sense and Numeration

Overall Expectations

By the end of Grade 5, students will:

- read, represent, compare, and order whole numbers to 100 000, decimal numbers to hundredths, proper and improper fractions, and mixed numbers;
- demonstrate an understanding of magnitude by counting forward and backwards by 0.01;
- solve problems involving the multiplication and division of multi-digit whole numbers, and involving the addition and subtraction of decimal numbers to hundredths, using a variety of strategies;
- demonstrate an understanding of proportional reasoning by investigating whole-number rates.

Student will:

Specific Expectations	***Addison Wesley Mathematics Makes Sense Grade 5*, lessons:**
Quantity Relationships represent, compare, and order whole numbers and decimal numbers from 0.01 to 100 000, using a variety of tools (e.g., number lines with appropriate increments, base ten materials for decimals);	2.1, 4.1, 4.3
demonstrate an understanding of place value in whole numbers and decimal numbers from 0.01 to 100 000, using a variety of tools and strategies (e.g., use numbers to represent 23 011 as 20 000 + 3000 + 0 + 10 + 1; use base ten materials to represent the relationship between 1, 0.1, and 0.01);	2.1, 4.1
read and print in words whole numbers to ten thousand, using meaningful contexts (e.g., newspapers, magazines);	2.1
round decimal numbers to the nearest tenth, in problems arising from real-life situations;	4.4
represent, compare, and order fractional amounts with like denominators, including proper and improper fractions and mixed numbers, using a variety of tools (e.g., fraction circles, Cuisenaire rods, number lines) and using standard fractional notation;	8.2, 8.3

Specific Expectations	***Addison Wesley Mathematics Makes Sense Grade 5*, lessons:**
demonstrate and explain the concept of equivalent fractions, using concrete materials (e.g., use fraction strips to show that $\frac{3}{4}$ is equal to $\frac{9}{12}$);	8.1
demonstrate and explain equivalent representations of a decimal number, using concrete materials and drawings (e.g., use base ten materials to show that three tenths [0.3] is equal to thirty hundredths [0.30]);	8.4, 8.5
read and write money amounts to $1000 (e.g., $455.35 is 455 dollars and 35 cents, or four hundred fifty-five dollars and thirty-five cents);	6.4
solve problems that arise from real-life situations and that relate to the magnitude of whole numbers up to 100 000;	2.1 with supporting BLM
Counting count forward by hundredths from any decimal number expressed to two decimal places, using concrete materials and number lines (e.g., use base ten materials to represent 2.96 and count forward by hundredths: 2.97, 2.98, 2.99, 3.00, 3.01, …; "Two and ninety-six hundredths, two and ninety-seven hundredths, two and ninety-eight hundredths, two and ninety-nine hundredths, three, three and one hundredth, …");	4.1 with supporting TG note
Operational Sense solve problems involving the addition, subtraction, and multiplication of whole numbers, using a variety of mental strategies (e.g., use the commutative property: 5 x 18 x 2 = 5 x 2 x 18, which gives 10 x 18 = 180);	2.2, 2.5, 2.9, 10.1
add and subtract decimal numbers to hundredths, including money amounts, using concrete materials, estimation, and algorithms (e.g., use 10 x 10 grids to add 2.45 and 3.25);	4.6, 4.7, 6.5
multiply two-digit whole numbers by two-digit whole numbers, using estimation, student-generated algorithms, and standard algorithms;	2.10, 2.13 with supporting TG note
divide three-digit whole numbers by one-digit whole numbers, using concrete materials, estimation, student-generated algorithms, and standard algorithms;	2.11, 2.12 with supporting TG note

Specific Expectations	***Addison Wesley Mathematics Makes Sense Grade 5*, pages:**
multiply decimal numbers by 10, 100, 1000, and 10 000, and divide decimal numbers by 10 and 100, using mental strategies (e.g., use a calculator to look for patterns and generalize to develop a rule);	4.8, 4.9 with supporting TG notes
use estimation when solving problems involving the addition, subtraction, multiplication, and division of whole numbers, to help judge the reasonableness of a solution;	2.2, 2.4, 2.5, 2.11, 2.12
Proportional Relationships describe multiplicative relationships between quantities by using simple fractions and decimals (e.g., "If you have 4 plums and I have 6 plums, I can say that I have $1\frac{1}{2}$ or 1.5 times as many plums as you have.");	10.1A (TG lesson)
determine and explain, through investigation using concrete materials, drawings, and calculators, the relationship between fractions (i.e., with denominators of 2, 4, 5, 10, 20, 25, 50, and 100) and their equivalent decimal forms (e.g., use a 10 x 10 grid to show that $\frac{2}{5} = \frac{40}{100}$, which can also be represented as 0.4);	8.4, 8.5 with supporting TG note
demonstrate an understanding of simple multiplicative relationships involving whole-number rates, through investigation using concrete materials and drawings.	1.4, 6.2, 6.3, Cross Strand Investigation, page 402

Measurement

Overall Expectations

By the end of Grade 5, students will:

- estimate, measure and record perimeter, area, temperature change, and elapsed time, using a variety of strategies;
- determine the relationships among units and measurable attributes, including the area of a rectangle and volume of a rectangular prism.

Student will:

Specific Expectations	***Addison Wesley Mathematics Makes Sense Grade 5*, lessons:**
Attributes, Units, and Measurement Sense estimate, measure (i.e., using an analogue clock), and represent time intervals to the nearest second;	6.1
estimate and determine the elapsed time, with and without using a time line, given the durations of events expressed in minutes, hours, days, weeks, months or years;	6.1B (TG lesson)
measure and record temperatures to determine and represent temperature changes over time (e.g., record temperature changes in an experiment or over a season);	5.4 with supporting TG note
estimate and measure the perimeter and area of regular and irregular polygons, using a variety of tools (e.g., grid paper, geoboard, dynamic geometry software) and strategies;	9.5, 9.6, 9.7, 9.8, 9.9
Measurement Relationships select and justify the most appropriate standard unit (i.e., millimetre, centimetre, decimetre, metre, kilometre) to measure length, height, width, and distance, and to measure the perimeter of various polygons;	9.1
solve problems requiring conversion from metres to centimetres and from kilometres to metres;	9.2 with supporting BLM
solve problems involving the relationship between a 12-hour clock and a 24-hour clock (e.g., 15:00 is 3 hours after 12 noon, so 15:00 is the same as 3:00 p.m.);	6.1A (TG lesson)

Specific Expectations	***Addison Wesley Mathematics Makes Sense Grade 5*, lessons:**
create, through investigation using a variety of tools (e.g., pattern blocks, geoboard, grid paper) and strategies, two-dimensional shapes with the same perimeter or the same area (e.g., rectangles and parallelograms with the same base and the same height);	9.5
determine, through investigation using a variety of tools (e.g., concrete materials, dynamic geometry software, grid paper) and strategies (e.g., building arrays), the relationships between the length and width of a rectangle and its area and perimeter, and generalize to develop the formulas [i.e., *Area = length × width; Perimeter = (2 × length) + (2 × width)*];	9.7, 9.8
solve problems requiring the estimation and calculation of perimeters and areas of rectangles;	9.7, 9.8
determine, through investigation, the relationship between capacity (i.e., the amount a container can hold) and volume (i.e., the amount of space taken up by an object), by comparing the volume of an object with the amount of liquid it can contain or displace (e.g., a bottle has a volume, the space it takes up, and a capacity, the amount of liquid it can hold);	6.8
develop, through investigation using stacked congruent rectangular layers of concrete materials, the relationship between the height, the area of the base, and the volume of a rectangular prism, and generalize to develop the formula (i.e., *Volume = area of base × height*);	6.8A (TG lesson)
select and justify the most appropriate standard unit to measure mass (i.e., milligram, gram, kilogram, tonne).	6.9, 6.10

Geometry and Spatial Sense

Overall Expectations

By the end of Grade 5, students will:

- identify and classify two-dimensional shapes by side and angle properties, and compare and sort three-dimensional figures;
- identify and construct nets of prisms and pyramids;
- identify and describe the location of an object, using the cardinal directions, and translate two-dimensional shapes.

Students will:

Specific Expectations	***Addison Wesley Mathematics Makes Sense Grade 5*, lessons:**
Geometric Properties distinguish among polygons, regular polygons, and other two-dimensional shapes;	3.1, 3.4
distinguish among prisms, right prisms, pyramids and other three-dimensional figures;	3.6 with supporting BLM
identify and classify acute, right, obtuse, and straight angles;	3.2 with supporting TG note
measure and construct angles up to 90º, using a protractor;	3.2
identify triangles (i.e., acute, right, obtuse, scalene, isosceles, equilateral) and classify them according to angle and side properties;	3.1, 3.4
construct triangles, using a variety of tools (i.e., protractor, compass, dynamic geometric software), given acute or right angles and side measurements;	3.5
Geometric Relationships identify prisms and pyramids from their nets;	3.6
construct nets of prisms and pyramids, using a variety of tools (e.g., grid paper, isometric dot paper, Polydrons, computer application);	3.6, Unit 3 Technology Feature, page 102
Location and Movement locate an object using the cardinal directions (i.e., north, south, east, west) and a coordinate system (e.g., "If I walk 5 steps north and 3 steps east, I will arrive at the apple tree.");	7.1 with supporting TG note
compare grid systems commonly used on maps (i.e., the use of numbers and letters to identify an area; the use of a coordinate system based on the cardinal directions to describe a specific location);	7.1 with supporting TG note

Specific Expectations	***Addison Wesley Mathematics Makes Sense Grade 5*, lessons:**
identify, perform, and describe translations using a variety of tools (e.g., geoboard, dot paper, computer program);	7.2
create and analyse designs by translating and/or reflecting a shape, or shapes, using a variety of tools (e.g., geoboard, grid paper, computer program).	7.6, 10.6, Unit 10 Technology Feature, page 371

Patterning and Algebra

Overall Expectations

By the end of Grade 5, students will:

- determine, through investigation using a table of values, relationships in growing and shrinking patterns, and investigate repeating patterns involving translations;
- demonstrate, through investigation, an understanding of the use of variables in equations.

Students will:

Specific Expectations	***Addison Wesley Mathematics Makes Sense Grade 5*, lessons:**
Patterns and Relationships create, identify, and extend numeric and geometric patterns, using a variety of tools (e.g., concrete materials, paper and pencil, calculators, spreadsheets);	1.1, 1.3, 1.4, 1.5, 10.3, 10.4
build a model to represent a number pattern presented in a table of values that shows the term number and the term;	1.2, 10.3
make a table of values for a pattern that is generated by adding or subtracting a number (i.e., a constant) to get the next term, or by multiplying or dividing by a constant to get the next term, given either the sequence (e.g., 12, 17, 22, 27, 32, …) or the pattern rule in words (e.g., start with 12 and add 5 to each term to get the next term);	1.2, 1.3, 1.4
make predictions related to growing and shrinking geometric or numeric patterns ;	1.1, 1.3, 10.3, 10.4
extend and create repeating patterns that result from translations, through investigation using a variety of tools (pattern blocks, dynamic geometry software, dot paper);	7.2 with supporting TG note
Variables, Expressions, and Equations demonstrate, through investigation, an understanding of variables as changing quantities, given equations with letters or symbols that describe relationships involving simple rates (e.g., the equations $C = 3 \times n$ and $3 \times n = C$ both represent the relationship between the total cost (C), in dollars, and the number of sandwiches purchases (n), when each sandwich costs $3);	10.3 with supporting TG note

Specific Expectations	***Addison Wesley Mathematics Makes Sense Grade 5*, lessons:**
demonstrate, through investigation, an understanding of variables as unknown quantities represented by a letter or other symbol (e.g., 12 = 5 + ☐ or 12 = 5 + *s* can be used to represent the following situations: "I have 12 stamps altogether and 5 of them are from Canada. How many are from other countries?");	10.1 with supporting TG note
determine the missing number in equations involving addition, subtraction, multiplication, or division and one- or two-digit numbers, using a variety of tools and strategies (e.g., modelling with concrete materials, using guess and check with and without the aid of a calculator).	10.1 with supporting BLM

Data Management and Probability

Overall Expectations

By the end of Grade 5, students will:

- collect and organize discrete or continuous primary data and secondary data and display the data using charts and graphs, including broken-line graphs;
- read, describe, and interpret primary data and secondary; data presented in charts and graphs, including broken-line graphs;
- represent as a fraction the probability that a specific outcome will occur in a simple probability, experiment, using systematic lists and area models.

Students will:

Specific Expectations	***Addison Wesley Mathematics Makes Sense Grade 5*, lessons:**
Collection and Organization of Data distinguish between discrete data (i.e., data organized using numbers that have gaps between them, such as whole numbers, and often used to represent a count, such as the number of times a word is used) and continuous data (i.e., data organized using all numbers on a number line that fall within the range of the data, and used to represent measurements such as heights or ages of trees);	5.3 with supporting TG note
collect data by conducting a survey or an experiment (e.g., gather and record air temperature over a two-week period) to do with themselves, their environment, issues in their school or community, or content from another subject, and record observations or measurements;	5.3. 5.5, Unit 5 Problem
collect and organize discrete or continuous primary data and secondary data and display the data in charts, tables, and graphs (including broken-line graphs) that have appropriate titles, labels (e.g., appropriate units marked on the axes), and scales that suit the range and distribution of the data (e.g., to represent precipitation amounts ranging from 0 mm to 50 mm over the school year, use a scale of 5 mm for each unit on the vertical axis and show months on the horizontal axis) using a variety of tools (e.g., graph paper, simple spreadsheets, dynamic statistical software);	5.3, 5.4, Unit 5 Technology Features, pages 163, 169, and 176

Specific Expectations	***Addison Wesley Mathematics Makes Sense Grade 5*, lessons:**
demonstrate an understanding that sets of data can be samples of larger populations (e.g., to determine the most common shoe size in your class, you would include every member of the class in the data; to determine the most common shoe size in Ontario for your age group, you might collect a large sample from classes across the province);	5.5
describe, through investigation, how a set of data is collected (e.g., by survey, measurement, observation) and explain whether the collection method is appropriate;	5.3 with supporting TG note
Data Relationships read, interpret, and draw conclusions from primary data (e.g., survey results, measurements, observations), and from secondary data (e.g., precipitation or temperature data in the newspaper, data from the Internet about heights of buildings and other structures), presented in charts, tables and graphs (including broken-line graphs);	5.1, 5.3, 5.4
calculate the mean for a small set of data and use it to describe the shape of the data set across its range of values, ,using charts and graphs (e.g., "The data values fall mainly into two groups on both sides of the mean."; "The set of data is not spread out evenly around the mean.");	5.2 with supporting TG note
compare similarities and differences between two related sets of data, using a variety of strategies (e.g., by representing the data using tally charts, stem-and-leaf plots, double bar graphs, or broken-line graphs; by determining measures of central tendency [i.e., mean, median, and mode]; by describing the shape of a data set across its range of values;	5.4A (TG lesson)

Specific Expectations	***Addison Wesley Mathematics Makes Sense Grade 5*, lessons:**
Probability determine and represent all the possible outcomes in a simple probability experiment (e.g., when tossing a coin, the possible outcomes are heads and tails; when rolling a number cube, the possible outcomes are 1, 2, 3, 4, 5, and 6), using systematic lists and area models (e.g., a rectangle is divided into two equal areas to represent the outcomes of a coin toss experiment);	11.2, 11.4, 11.5
represent, using a common fraction, the probability that an event will occur in simple games and probability experiments (e.g., "My spinner has four equal sections and one of those sections is coloured red. The probability that I will land on red is $\frac{1}{4}$);	11.2, 11.3
pose and solve simple probability problems, and solve them by conducting probability experiments and selecting appropriate methods for recording the results (e.g., tally chart, line plot, bar graph).	11.1, 11.2, 11.3, 11.6